Text of Presentation by

K&M Technology Group

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Hank Kulesza

Madam Chairman, Congressmen and distinguished guests,

My name is Hank Kulesza

- Chief Operating Officer of K&M Technology Group based in Houston, Texas

- Thank you for allowing me the opportunity to address your committee this morning.

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We are a drilling engineering firm that has been specializing in extended reach drilling technology for the past 15 years.

First, I would like to introduce you to this exciting technology which has helped minimize drilling's impact on the environment while still allowing us to develop oil and gas reserves in sensitive areas of our nation and around the world.

In this example we will use an offshore platform environment which has been set to develop reserves beneath and around the platform. Directional drilling technology is generally used to deviate the wells into key locations of the producing formation. This technology has proven very effective in exploring our nation's petroleum reserves.

Extended reach drilling technology takes directional drilling to its extreme. The wells are deviated, very near the surface (sea floor) to very high angles of inclination. This high angle is maintained and the well is drilled onwards to distant targets, often several miles away from the platform.

Although many technical challenges exist when attempting wells of this nature, many of these challenges have already been met and overcome. Wells have already been drilled to reserves as far away as 35,000 ft, or over 6½ miles, from the drill center.

The technologies that have enabled us to drill to these distances, thus far, have mainly focused on overcoming drag forces that prevent pipe from sliding into these wells and rotating friction forces that increase the amount of torque required to rotate the pipe for the drilling phase.

Casing flotation was one of the first innovations used to allow protective casing to be run and cemented in these wells. Our company led the development of this technology back in 1989.

The next challenges to overcome were the limitations of the connections on the pipe being used to drill and case these wells. The industry developed connections that were many times stronger than any that had been used before.

Conventional directional drilling technology quickly met its limits in extended reach drilling. New systems that rotated continuously (a key to being able to drill these wells) and were adjustable from the surface while drilling were the next major development.

The gravitational elements and friction factors extended reach drilling produces necessitated the development of better drilling fluids.

Oil based drilling fluids better lubricate the wellbore and therefore reduce the torque and drag in the well. However, conventional oil based fluids could not be discharged overboard. The development of environmentally friendly oil based fluids have allowed extended reach drilling to be used in areas where it was previously prohibited.

Our drilling rigs are also becoming more compact and more powerful. They can produce more power, handle more fluids and equipment and occupy a much smaller footprint than the previous generation of drilling units. This new rig technology enables the operator to drill out even further.

The impact of extended reach drilling and its enabling technologies is significant.

This map of Long Beach Harbor in California depicts the 4 drilling islands constructed around 1970. Each island has approximately 100 wells directionally drilled into the producing formations.

Using today's proven extended reach drilling technology the entire reserves under Long Beach Harbor could be developed from the THUMS Pier J drill site.

There may be no better illustration on ERD's positive environmental impact than this slide.

Extended Reach Technology is now utilized worldwide to minimize the cost and environmental impact of developing oil and gas reserves.

The technology allows us to: reach previously unrecoverable reserves in environmentally sensitive areas

•Drill from offshore back to shore

-Drilling to offshore locations from land in Alaska, California, U.K., Australia, Russia and New Zealand

-Drilling under shipping channels in the Gulf of Mexico

-Drilling under lakes, rivers, reefs and other restricted areas

All of these instances would have required an additional drilling facility in order to be developed, or the reserves would have simply been unrecoverable.

-These facilities can cost upwards of $100 million, or more, in the offshore environment

The slide is an example of extended reach technologies overwhelming positive environmental impact in the Gulf of Mexico.

This grid represents the typical 3 x 3 mile lease boundaries in the Gulf of Mexico.

Using 1985 drilling technology, the maximum typical reach for a well would have been approximately 1.5 miles from the platform and it would have taken 49 drill centers to develop this 7 x 7 lease grid

By 1995, the drilling radius had been increased to 4 miles using ERD technology. The improvement in our ability to drill highly deviated wells reduced the number of drill centers to develop this grid down to 9

Today, our technology and equipment capabilities allow us to drill out to distances as far as 6.6 miles, or roughly 35,000 ft, reducing the number of drill centers to develop this grid to just 4.

Finally, we continue to look for ways to stretch our capabilities in extended reach drilling. We believe that it is possible to reach out even further, probably beyond the 10 mile limit. In order for this to happen, new technological breakthroughs will be required. The proposed construction of the Complex Well Test Center located at RMOTC, in Casper, Wyoming, which is outlined in the draft Energy Bill will be a significant step towards making this a reality. If this becomes a reality we could reduce the required number of facilities, in this example, to just slightly more than 1.

Finally, to provide you an example more familiar and to give you a better feel for the kinds of distances that we're talking about, we have drawn these same circles on a map of Washington using the White House as the center.

•1985 Technology Gets you out to just about Georgetown

•1995 Technology gets you into the middle of Arlington Cemetery

•Today's technology would get you out to the Mazza Galleria

•Tomorrow's developments could take us out to Landover, Maryland, or even further.

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•Thank you for your time and consideration